
Dr. Joseph A. Barranco

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Academic & Research Appointments

San Francisco State University, San Francisco, CA

- Assistant Professor, August 2007 – present

Harvard–Smithsonian Center for Astrophysics, Cambridge, MA

- Postdoctoral Fellow, Institute for Theory & Computation, August 2005 – July 2007

Kavli Institute for Theoretical Physics, Santa Barbara, CA

- Postdoctoral Fellow, January 2004 – July 2005

Department of Astronomy, University of California, Berkeley

- Graduate Student Researcher, Advisor: Professor Philip S. Marcus, September 1996 – December 2003

Harvard–Smithsonian Center for Astrophysics, Cambridge, MA

- Undergraduate Research Assistant, Advisor: Professor Alyssa A. Goodman, January 1993 – June 1995
- Undergraduate Research Assistant, Advisor: Professor Jonathan E. Grindlay, June 1991 – December 1992

Education

University of California, Berkeley

- Ph.D. May 2004, Astrophysics; M.A. December 1996, Astronomy
- Thesis: *Theory and Numerical Simulation of Three-Dimensional Vortices in Protoplanetary Disks*
- Advisor: Professor Philip S. Marcus

Harvard University, Cambridge, MA

- A.B. 1993, Physics, Astronomy & Astrophysics, *Magna Cum Laude*
- Thesis: *Velocity Coherent Structure in the Dense Cores of Dark Molecular Clouds*
- Advisor: Professor Alyssa A. Goodman

Milford High School, Milford, MA

Honors & Awards

- NASA Group Achievement Award SIM Planet Finding Capability Study Team, May 2010: “For successful completion of the study of the detection capability of an astronomical mission searching for terrestrial planets in habitable zones of nearby stars.”
- San Francisco State University Presidential Award for Faculty Scholarship, Spring 2010
- American Physical Society Nicholas Metropolis Award
for Outstanding Doctoral Thesis Work in Computational Physics, 2006
- U.C. Berkeley Outstanding Graduate Student Instructor Award, 1998

Grants & Fellowships

- NSF Astronomy & Astrophysics Research Grants, **\$425,881** for 3-year period from 09/15/2010 – 09/14/2013.
- NSF Astronomy & Astrophysics Postdoctoral Fellowship, **\$194,000**, 2004–2007
- U.C. Berkeley Center for Integrative Planetary Studies Mini-Grant Winner, **\$17,500**, 2001–2002
- National Science Foundation Graduate Fellowship, 1996–1999

Teaching Experience at San Francisco State University

Semester	Course	Title	Enrollment ¹	Teaching effectiveness ²
Fall 2007	Physics 220	General Physics w/ Calculus I	68 (50)	1.41 ³
Spring 2008	Physics 722	Astrophysics	9 (8)	2.59 ³
Fall 2008	Physics 220/222 ⁴	General Physics w/ Calculus I	107 (78)	1.51
Fall 2008	Physics 330	Analytic Mechanics I	23 (19)	1.71 ³
Spring 2009	Physics 220/222 ⁴	General Physics w/ Calculus I	87 (73)	1.26
Spring 2009	Physics 712	Physics of Plasmas	9 (7)	1.43 ³
Fall 2009	Physics 220/222 ⁴	General Physics w/ Calculus I	111 (91)	1.49
Fall 2009	Physics 330	Analytic Mechanics I	20 (18)	1.84
Fall 2010	Physics 220/222 ⁴	General Physics w/ Calculus I	114 (90)	1.51
Fall 2010	Physics 330	Analytic Mechanics I	20 (17)	1.91
Spring 2011	Physics 222 ⁵	General Physics w/ Calculus I Lab	N/A	N/A
Spring 2011	Astronomy 400 ⁶	Stellar Astrophysics	7 (7)	1.31 ³
Spring 2011	Astronomy 700 ⁶	Stellar Astrophysics	7 (6)	1.89 ³
Spring 2011	Physics 712	Physics of Plasmas	9 (7)	1.55
Fall 2011	Physics 220/222 ⁴	General Physics w/ Calculus I	140 (121)	1.73
Fall 2011	Physics 330	Analytic Mechanics I	29 (25)	1.28
Spring 2012	Physics 220/222 ⁴	General Physics w/ Calculus I	98 (89)	1.55
Spring 2012	Astronomy 400 ⁶	Stellar Astrophysics	5 (4)	1.10 ⁷
Spring 2012	Astronomy 700 ⁶	Stellar Astrophysics	1 (1)	1.10 ⁷
Fall 2012	Physics 222 ⁵	General Physics w/ Calculus I Lab	N/A	N/A
Fall 2012	Physics 330	Analytic Mechanics I	29	
Fall 2012	Physics 440 ^{6,8}	Computational Physics	7	3
Fall 2012	Physics 770 ^{6,8}	Computational Physics	13	3
	Mean	Undergrad Lower Division	725 (592)	1.52
	Mean	Undergrad Upper Division	104 (90)	1.60
	Mean	Graduate	35 (29)	1.86
	Mean	All Courses	864 (711)	1.54

¹ Enrollment figures are for census date. The number of student evaluations is in parentheses.

² Teaching effectiveness is based on mean score on student evaluations on a scale of 1 (excellent) to 5 (poor).

³ Indicates first time Dr. Barranco taught class.

⁴ Includes coordinating Physics 222 laboratory component, which entails meeting with graduate teaching assistants (GTAs) once a week to discuss the laboratory exercises, teaching strategies, grading standards. As coordinator, I also assigns final grades.

⁵ Coordinated Physics 222 lab, but did not teach corresponding lecture Physics 220.

⁶ Paired course. Joint lectures, but length & difficulty of assignments increased for graduate students.

⁷ Because there was only one graduate student enrolled in the paired course, the graduate and undergraduate evaluations were combined to maintain student's anonymity.

⁸ Includes supervising computational laboratory component.

N.B. Dr. Barranco had no teaching responsibilities in Spring 2010 because he was awarded a Presidential Award for Faculty Scholarship.

Thesis & Oral Exam Committees, F2007 – F2012

Student	Type of Committee	Date
Matt Giguere	M.S. Physics Thesis Defense	05/07/2009
Franco DeMarinis	M.S. Physics Oral Exam	05/14/2009
Alison Mansheim	M.S. Physics Thesis Defense	07/02/2009
Michael Wong	M.S. Physics Oral Exam	06/18/2010
Franco DeMarinis	M.S. Physics Oral Exam (retake)	07/08/2010
<i>Michael Ryan</i>	M.S. Physics Thesis Defense	07/22/2010
Dima Kamalov	M.S. Physics Oral Exam	04/25/2011
Rajasi Joshi	M.S. Physics Thesis Defense	04/29/2011
Shannon Lee	M.S. Physics Thesis Defense	05/11/2011
<i>Andrew Fittingoff</i>	M.S. Physics Thesis Defense	07/28/2011
<i>Samy Kamal</i>	M.S. Physics Thesis Defense	08/02/2011

Italicized names are students for whom Dr. Barranco advised on M.S. thesis projects.

Other Teaching Experience Prior to SFSU

Department of Astronomy, Harvard University

- Lab Instructor: Astronomy 191 (Astrophysics Laboratory), Spring 2006
- Taught undergraduates how to use 16-inch telescope and CCD to make observations of eclipsing binary stars, and to reduce & analyze data to determine orbital properties.

Department of Physics, University of California, Santa Barbara

- Lecturer: Physics 3 (Mechanical Waves, Electricity), Summer 2004

San Quentin Prison College Program through Patten College

- Instructor: Statistics, Spring 2001; Astronomy, Summer 2001; Algebra, Fall 2001

Department of Physics, University of California, Berkeley

- Group Tutor: Physics 137a (Intro. Quantum Mechanics), Fall 2000
- Graduate Student Instructor: Physics 7A (Intro. Mechanics), Spring 2000 (Dr. B. Birkett)
- Graduate Student Instructor: Physics 7B (Intro. Electricity & Magnetism), Fall 1999 (Dr. B. Birkett)

Department of Astronomy, University of California, Berkeley

- Lecturer: Astronomy 7B (Intro. Astrophysics II), Spring 1998
- Head Graduate Student Instructor: Astronomy 7A (Intro. Astrophysics I), Fall 1997 (Prof. J. Graham)
- Head Graduate Student Instructor: Astronomy 10 (Intro. Astronomy), Spring 1996 (Prof. J. Silk)
- Graduate Student Instructor: Astronomy 10 (Intro. Astronomy), Fall 1995 (Prof. F. Shu)

Upward Bound Program at University of California, Berkeley

- Upward Bound is a mentoring/tutoring program for socio-economically disadvantaged high school students who are trying to become the first in their families to attend college.
- Math/Science Instructor: Math & Science Summer Academy, Summer 1996, 1997
- Math/Science Instructor: Saturday College, Fall 1996, Spring 1997

Publications

Peer-Refereed Journal Articles Since August 2007

- Penev, K., **Barranco, J.**, Sasselov, D. 2011, “Three-dimensional Spectral Simulations of Anelastic Turbulent Convection.” *The Astrophysical Journal*, **734**:118 eprint arXiv:astro-ph/08105151.
- Lee, A., Chiang, E., Asay-Davis, X., **Barranco, J.**, 2010, “Forming Planetesimals by Gravitational Instability: II. How Dust Settles to its Marginally Stable State.” *The Astrophysical Journal*, **725**: 1938–1954. eprint arXiv:astro-ph/10100250.
- Lee, A., Chiang, E., Asay-Davis, X., **Barranco, J.**, 2010, “Forming Planetesimals by Gravitational Instability: I. The Role of the Richardson Number in Triggering the Kelvin-Helmholtz Instability.” *The Astrophysical Journal*, **718**: 1367–1377. eprint arXiv:astro-ph/10100248.
- Penev, K., **Barranco, J.**, Sasselov, D. 2009, “Direct Calculation of the Turbulent Dissipation Efficiency in Anelastic Convection.” *The Astrophysical Journal*, **705**: 285–297. eprint arXiv:astro-ph/08105370.
- **Barranco, J.A.** 2009, “Three-Dimensional Simulations of Kelvin-Helmholtz Instability in Settled Dust Layers in Protoplanetary Disks.” *The Astrophysical Journal*, **691**: 907–921. eprint arXiv:astro-ph/07114410.
- Hartman, J. D., Gaudi, B. S., Holman, M. J., McLeod, B. A., Stanek, K. Z., **Barranco, J. A.**, Pinsonneault, M. H., Meibom, S., Kalirai, J. S., 2009, “Deep MMT Transit Survey of the Open Cluster M37. IV. Limit on the Fraction of Stars With Planets as Small as $0.3 R_J$.” *The Astrophysical Journal*, **695**:336–356. eprint arXiv:astro-ph/08093807.
- Hartman, J.D., Gaudi, B.S., Pinsonneault, M.H., Stanek, K.Z., Holman, M.J., McLeod, B.A., Meibom, S., **Barranco, J.A.**, Kalirai, J.S., 2009, “Deep MMT Transit Survey of the Open Cluster M37. III. Stellar Rotation at 550 Myr.” *The Astrophysical Journal*, **691**: 342–364. eprint arXiv:astro-ph/08031488.
- Hartman, J.D., Gaudi, B.S., Holman, M.J., McLeod, B.A., Stanek, K.Z., **Barranco, J.A.**, Pinsonneault, M.H., Kalirai, J.S., 2008, “Deep MMT Transit Survey of the Open Cluster M37. II. Variable Stars.” *The Astrophysical Journal*, **675**: 1254–1277. eprint arXiv:astro-ph/07093484.
- Hartman, J.D., Gaudi, B.S., Holman, M.J., McLeod, B.A., Stanek, K.Z., **Barranco, J.A.**, Pinsonneault, M.H., Meibom, S., Kalirai, J.S., 2008, “Deep MMT Transit Survey of the Open Cluster M37. I. Observations and Cluster Parameters.” *The Astrophysical Journal*, **675**: 1233-1254. eprint arXiv:astro-ph/07093063.

Peer-Refereed Journal Articles Prior to August 2007

- **Barranco, J.A.** & Marcus, P.S. 2006 “A 3D Spectral Anelastic Hydrodynamic Code for Shearing, Stratified Flows,” *Journal of Computational Physics*, **219**:21–46.
- **Barranco, J.A.** & Marcus, P.S. 2005, “Three-Dimensional Vortices in Stratified Protoplanetary Disks,” *The Astrophysical Journal*, **623**:1157-1170.
- **Barranco, J.A.** & Goodman, A.A. 1998, “Coherent Dense Cores. I. NH_3 Observations,” *The Astrophysical Journal*, **504**:207-222.
- Goodman, A.A., **Barranco, J.A.**, Wilner, D.J., & Heyer, M.H. 1998, “Coherence in Dense Cores. II. The Transition to Coherence,” *The Astrophysical Journal*, **504**:223-246.

Other Non-Refereed Articles Prior to August 2007

- Hartman, J.D., Gaudi, B.S., Holman, M.J., McLeod, B.A., Stanek, K.Z. & **Barranco, J.A.** 2007, “A Search for Transiting Hot Planets as Small as Neptune in the Open Cluster M37,” ASP Conference Series: “Transiting Extrasolar Planets Workshop” MPIA Heidelberg Germany, 25-28 September 2006. Eds: Cristina Afonso, David Weldrake & Thomas Henning. eprint arXiv:astro-ph/0701389
- **Barranco, J.A.** & Marcus, P.S. 2004, “Planet Embryos in Vortex Wombs,” in *The Search for Other Worlds: Fourteenth October Astrophysics Conference at the University of Maryland*, AIP Conference Proceedings, **713**:67–70.
- **Barranco, J.A.**, Marcus, P.S., & Umurhan, O.M. 2000, “Scalings and Asymptotics of Coherent Vortices in Protoplanetary Disks,” in *Studying Turbulence Using Numerical Simulation Databases – VIII, Proceedings of the 2000 Summer Program*, Stanford University/NASA–Ames Center for Turbulence Research,

p.85–95.

- **Barranco, J.A.** & Marcus, P.S. 2000, “Vortices in Protoplanetary Disks and the Formation of Planetesimals,” in *Studying Turbulence Using Numerical Simulation Databases – VIII, Proceedings of the 2000 Summer Program*, Stanford University/NASA–Ames Center for Turbulence Research, p.97–108.
- Goodman, A.A., **Barranco, J.A.**, Wilner, D.J., & Heyer, M.H. 1998, “Velocity Coherence in Dense Cores,” *Astrophys. Lett. & Comm.*, **37**:109.
- Goodman, A.A., **Barranco, J.A.**, Wilner, D.J., & Heyer, M.H. 1997, “Velocity Coherence in Dense Cores,” in *Star Formation Near and Far: Seventh Astrophysics Conference*, ed. S.S. Holt, L.G. Mundy (Woodbury, N.Y.: AIP Press) **393**:105.
- Goodman, A.A., **Barranco, J.A.**, Wilner, D.J., & Heyer, M.H. 1996, “Velocity Coherence in Dense Cores,” in *CO: Twenty-Five Years of Millimeter-Wave Spectroscopy*, Proceedings of the 170th Symposium of the IAU, Tucson, AZ, May 29–June 5, 1995, ed. W. Latter, S.J.E. Radford, P.R. Jewell, J.G. Mangum, & J. Bally (Dordrecht: Kluwer), p.116.
- Goodman, A.A. & **Barranco, J.A.** 1994, “Velocity Structure in Dense Cores,” in *Clouds, Cores, and Low Mass Stars*, ed. D. Clemens & R. Barvainis (San Francisco: Astronomical Society of the Pacific Conference Proceedings), **65**:57–66.

Professional Leadership

- Active, current membership in the American Physical Society (Divisions of Astrophysics, Fluid Dynamics, Computational Physics) and the American Astronomical Society (Division of Planetary Sciences).
- **American Astronomical Society Committee on the Status of Minorities in Astronomy (CSMA)**, 07/2012 – 06/2015. This committee works to increase the number of historically under-represented minorities, notably African-Americans, Hispanic, and Native Americans, who earn degrees in astronomy and pursue successful careers in astronomy in the United States. I helped write a NSF proposal to fund under-represented minority (URM) students to attend national conferences. See: <http://csma.aas.org/>.
- **American Physical Society Committee on Minorities (COM)**, 01/2012 – 12/2014. This committee works to increase the number of historically under-represented minorities, notably African-Americans, Hispanic, and Native Americans, who earn degrees in physics and pursue successful careers in physics in the United States. COM conducts site visits and offers a minority scholarship for undergraduate physics majors. Other programs include the annual Edward A. Bouchet Award, travel grants, and the Roster, which lists names and qualifications of several hundred women and minorities in physics. See: <http://www.aps.org/about/governance/committees/commin/index.cfm>.
- Creator and moderator of Facebook page for LGBT (Lesbian, Gay, Bisexual, Transgendered) Physicists, Astrophysicists, Astronomers and Friends. See: <http://www.facebook.com/groups/89586472053>.
- 11/23/2010 – Served as a session chairperson for Session QH: Geophysical Fluid Dynamics at the American Physical Society Division of Fluid Dynamics in Long Beach, CA, November 21–23, 2010.
- Peer-reviewer for scientific articles and grant proposals for *The Astrophysical Journal*, *Physics of Plasma*, *Monthly Notices of the Royal Astronomical Society*, *National Science Foundation*, *Cambridge University Press*, *Theoretical & Computational Fluid Dynamics*, *Journal of Computational & Applied Mathematics*, *NASA Origins of the Solar System* program

Invited Talks & Colloquia

Since August 2007

- Sacramento State University, February 2, 2012, “Planet Embryos in Vortex Wombs”
- Lehman College, City University of New York, February 14, 2011, “Planet Embryos in Vortex Wombs”
- Anacapa Society Winter 2010 Workshop at the California Polytechnic University in Pomona, December 10–11, 2010, “Planet Embryos in Vortex Wombs”
- City College of San Francisco, April 22, 2009, “Planet Embryos in Vortex Wombs”
- City College of San Francisco, September 9, 2008, “Planet Embryos in Vortex Wombs”
- Peninsula Astronomical Society, May 9, 2008, “Planet Embryos in Vortex Wombs”
- University of San Francisco, February 27, 2008, “Planet Embryos in Vortex Wombs”
- San Mateo County Astronomical Society, November 2, 2007, “Planet Embryos in Vortex Wombs”
- University of California, Santa Cruz, October 31, 2007, “Planet Embryos in Vortex Wombs”

Prior to August 2007

- California State Polytechnic University, Pomona, February 27, 2007, “Planet Embryos in Vortex Wombs”
- San Francisco State University, February 23, 2007, “Planet Embryos in Vortex Wombs”
- Nicholas Metropolis Award talk, American Physical Society, March 2006, Baltimore, MD. Barranco, J.A. & Marcus, P.S. “A 3D Spectral Anelastic Hydrodynamic Code for Shearing, Stratified Flows”
- Haverford College, Department of Physics & Astronomy, February 6, 2006. “Planet Embryos in Vortex Wombs”
- Olin College of Engineering, Needham, MA, November 2005. “Planet Embryos in Vortex Wombs”
- Max Planck Institute for Astrophysics, Garching, Germany, December 2004. “Planet Embryos in Vortex Wombs”
- University of California, Berkeley, Department of Mechanical Engineering, April 2004. “Planet Embryos in Vortex Wombs”
- Kavli Institute for Theoretical Physics, University of California, Santa Barbara, February 2004. “Planet Embryos in Vortex Wombs”
- University of Texas, Austin, Department of Astronomy, October 2003. “The Future of Planet Formation”
- Lawrence Livermore National Laboratory, January 2003. “Planet Embryos in Vortex Wombs”
- Canadian Institute for Theoretical Astrophysics, Toronto, ON. January 2003. “Vortices in Protoplanetary Disks and the Formation of Planetesimals”
- Kavli Institute for Theoretical Physics, University of California, Santa Barbara, December 2002. “Vortices in Protoplanetary Disks and the Formation of Planetesimals”
- San Francisco State University, Department of Physics & Astronomy, December 2000. “Vortices in Protoplanetary Disks and the Formation of Planetesimals”

Conference Presentations

Since August 2007

- American Physical Society, Division of Fluid Dynamics, November 2010, Long Beach, CA. Barranco, J.A., Lee, A., Chiang, E., Asay-Davis, X. “Dust Settling in Protoplanetary Disks and the Onset of Kelvin-Helmholtz Instability.”
- American Physical Society, Division of Fluid Dynamics, November 2010, Long Beach, CA. Kamal, S., Barranco, J.A., & Marcus. P. “3D Vortices in Protoplanetary Disks.”

Prior to August 2007

- American Astronomical Society, Division of Planetary Sciences, October 2006, Pasadena, CA, Barranco, J.A. “Three-Dimensional Simulations of Kelvin-Helmholtz Instabilities of Dust Sublayers in the Midplanes of Protoplanetary Disks.”
- American Astronomical Society, January 2006, Washington, DC. Barranco, J.A. “Kelvin-Helmholtz Instability in the Dusty Midplane of Protoplanetary Disks.”
- American Astronomical Society, January 2005, San Diego, CA. Barranco, J.A. & Marcus, P.S. “Three-Dimensional Vortices in Stratified Protoplanetary Disks.”
- Ringberg Workshop on Planet Formation: Theory Meets Observation, December 2004, Rottach-Egern, Bavaria, Germany. “Planet Embryos in Vortex Wombs.”
- American Geophysical Union, December 2003, San Francisco, CA. Barranco, J.A. & Marcus, P.S. “Planet Embryos in Vortex Wombs.”
- The Search for Other Worlds: Fourteenth October Astrophysics Conference at the University of Maryland, October 2003, College Park, MD. “Planet Embryos in Vortex Wombs.”
- American Astronomical Society, Division of Planetary Sciences, September 2003, Monterey, CA. Barranco, J.A. & Marcus, P.S. “Planet Embryos in Vortex Wombs.”
- American Astronomical Society, January 2003, Seattle, WA. Barranco, J.A. & Marcus, P.S. “Planet Embryos in Vortex Wombs.”
- American Physical Society, Division of Fluid Dynamics, November 2002, Dallas, TX. Barranco, J.A. & Marcus, P.S. “Planet Embryos in Vortex Wombs.”
- American Astronomical Society, Division of Planetary Sciences, November 2001, New Orleans, LA. Barranco, J.A. & Marcus, P.S. “Vortices in Protoplanetary Disks and the Formation of Planetesimals.”
- American Physical Society, Division of Fluid Dynamics, November 2001, San Diego, CA. Barranco, J.A. & Marcus, P.S. “Vortices in Protoplanetary Disks and Their Role in Planet Formation.”
- American Physical Society, Division of Fluid Dynamics, November 2000, Washington, DC. Barranco, J.A. & Marcus, P.S. “Accumulation of Dust Grains within Vortices and its Role in Planet Formation.”
- American Physical Society, Division of Fluid Dynamics, November 1999, New Orleans, LA. Barranco, J.A. & Marcus, P.S. “The Role of Vortices in the Formation of Stars and Planets.”
- American Physical Society, Division of Fluid Dynamics, November 1998, Philadelphia, PA. Barranco, J.A. & Marcus, P.S. “An Application of Matrix Perturbation Theory to the Stability of Trailing Wake Vortices.”
- American Physical Society, Division of Fluid Dynamics, November 1997, San Francisco, CA. Barranco, J.A. & Marcus, P.S. “Destabilization of Trailing Wake Vortices.”

Contributions to Campus & Community

Contributions to Campus

1. **SFSU Academic Senate**, 08/2011 – present. Standing committees: Curriculum Review & Approval Committee (CRAC) & Education Policies Committee (EPC), 08/2011 – present
2. **Course Outline of Record Evaluator (CORE) for the CSU-wide Course Identification Numbering System (C-ID)**, 06/2012 – present. Evaluators are appointed by the CSU Academic Senate. The C-ID system is a supranumbering system for common transferable courses taught in both community colleges and the CSU system. The goal is to make the transfer process more transparent and effective for students. As an evaluator, I review physics course syllabi from community colleges to make sure they meet agreed-upon standards so that these courses can more easily transfer to the CSU system.
3. **Department of Physics & Astronomy Hiring Committee**, 08/2011 – present. Committee to review applications, interview, and recommend to hire assistant professor of observational astronomy. 2011/12 search was unsuccessful. Provost approved new search for 2012/13.
4. **Co-Director of SF-STAR (Supercomputing Facility for Space & Terrestrial Advanced Research)**, 01/2010 – present. Co-director Asst. Prof. Andisheh Mahdavi. This facility consists of a PowerWulf Supercomputing Cluster with 88 processing cores for research in physics & astronomy. B.S. and M.S. students at SFSU have the opportunity to learn parallel computing as part of theses research projects.
5. **Undergraduate Major Advisor**, 08/2010 – present. Meet one-on-one with undergraduates to go over their schedules and academic programs so that they remain on track to graduate. I advise them on tutoring resources, mentoring programs, scholarships, research opportunities, and graduate programs.
6. **Physics Curriculum Committee**, 10/2009 – present. Department standing committee whose focus is to make revisions to the B.A. & B.S. physics degrees, including how to implement the new GWR requirement (Graduate Writing Assessment Requirement).
7. **Astronomy Curriculum Committee**, 09/2008 – present. Department standing committee whose focus is to make revisions to the B.A. astronomy and B.S. astrophysics degrees, including how to implement the new GWR requirement (Graduate Writing Assessment Requirement). The committee is currently revising a proposal to the university for a new M.S. Astronomy degree.
8. 05/04/2012 – Judge for the College of Science & Engineering Student Project Showcase. Contact: Dr. Lisa White, lwhite@sfsu.edu.
9. 04/14/2012 – Represented the Dept. of Physics & Astronomy at SFSU Sneak Preview. Gave short presentation describing the department, and afterward met with prospective students and their parents and answered questions. Contact: Dr. Lisa White, lwhite@sfsu.edu.
10. 10/18/2011 – Attended the SFSU Science & Technology Theme Community annual fall formal dinner and interacted with undergraduate students who are majoring in science and engineering. Contact: Dr. Lisa White, lwhite@sfsu.edu.
11. 08/19/2011 – Gave presentation to approximately 12 new and returning math/science/business tutors in the Campus Academic Resource Program (CARP) on how to be a more effective peer tutor. Contact: Reyka Jayasinghe, Math/Science/Business Coordinator, carp.msb@gmail.com, (415) 405-0316.
12. 02/08/2011 – Gave a mock science press conference on my scientific research to students in Science 560: Science Writing. Students acted as journalists, and I answered questions on my research in language that a layperson could understand. One student was selected to interview me one-on-one and write an

article for InterSci, the student journal for the College of Science & Engineering. Article to appear in Spring 2013 issue. Contact: Janet Basu, jmbasu@comcast.net, (415) 265-0167.

13. 09/27/2010 – Attended the SFSU Science & Technology Theme Community annual fall formal dinner and interacted with undergraduate students who are majoring in science and engineering. Contact: Dr. Lisa White, lwhite@sfsu.edu.
14. 05/23/2009 – Served as a Faculty Marshal at the 2009 SFSU Commencement.
15. 11/12/2008 – Presented talk “Planet Embryos in Vortex Wombs: The Origin of Planetary Systems” at the annual dinner of the SFSU Science & Technology Theme Community. This talk was aimed at undergraduate physical science students. After public talk, answered general astronomy & astrophysics questions. Contact: Dr. Lisa White, lwhite@sfsu.edu.
16. 08/12/2008 – Served on a panel “The View After Year Two” at the New Faculty Orientation. Shared experiences from my first year as an assistant professor and helped new faculty brainstorm ways to balance teaching, research, and service.
17. 02/28/2008 – Judge of SFSU applicants in the physical and mathematical science division in the CSU Student Research Competition. Evaluated written and oral presentations from undergraduate and graduate students in the College of Science & Engineering and made recommendations on who should proceed to CSU level competition.
18. 01/22/2008 – Presented a research talk “Planet Embryos in Vortex Wombs” at the SFSU College of Science & Engineering (COSE) 2008 College Retreat. This talk was aimed at other science professors at SFSU, focussing on opportunities for collaborative research on planet formation among different departments in COSE.

Contributions to Community

1. 06/02-08/2012 – College Board/Educational Testing Service (ETS) Reader (grader) for the Advanced Placement Physics exams in Kansas City, MO.
2. 05/24/2011 – Helped evaluate multiple-choice assessment test on the Nature of Science (NOS) being developed by the Harvard-Smithsonian Center for Astrophysics Education Department as part of a National Research Council (NRC) & National Science Foundation (NSF) project on middle-school science education. Contact: Jaimie Miller, Science Education Specialist, Harvard-Smithsonian Center for astrophysics, jmiller@cfa.harvard.edu, (617) 496-7598.
3. 08/11/2009 – Led a professional development seminar for the San Francisco Unified School District’s Working to Improve Science Education (WISE) Summer Institute. Participants in the seminar were SFUSD public elementary school teachers. I set-up eight hands-on physics experiments & demonstrations in static electricity, fluid dynamics, light and optics, and thermodynamics using inexpensive and common supplies. Teachers cycled through the stations trying the experiments for themselves. I then led a brainstorming session on how to make the material accessible to elementary school students.
4. 06/17/2009 – Presented “An Evening with the Stars” with SFSU graduate student Shannon Lee to the Cal State East Bay Upward Bound retreat. Students were high school students from economically disadvantaged backgrounds. Shannon and I lead the students on a “walking tour” of a scale-model of the Solar System.
5. 04/22/2009 – Presented a public talk “Planet Embryos in Vortex Wombs: The Origin of Planetary Systems” to the CCSF–SFSU Bridges to the Baccalaureate Program at City College San Francisco. This talk was aimed at community college science students. After public talk, answered general astronomy & astrophysics questions.

6. 02/18/2009 – Discussed careers in physics & astronomy to three classes of middle school students at Willie L. Brown, Jr. Preparatory College Academy. Shared my life story and struggles as a beginning science student and my fascination with outer space. Answered questions on why and how I became a scientist.
7. 09/09/2008 – Presented a public talk “Planet Embryos in Vortex Wombs: The Origin of Planetary Systems” to the Dept. of Astronomy at City College of San Francisco. This talk was aimed at community college students. After public talk, answered general astronomy & astrophysics questions.
8. 05/09/2008 – Presented a public talk “Planet Embryos in Vortex Wombs: The Origin of Planetary Systems” to the Peninsula Astronomical Society at Foothill College. This talk was aimed at laypeople and amateur astronomers. After public talk, answered general astronomy & astrophysics questions.
9. 11/02/2007 – Presented a public talk “Planet Embryos in Vortex Wombs” to the San Mateo County Astronomical Society at the College of San Mateo. This talk was aimed at laypeople and amateur astronomers. After public talk, answered general astronomy & astrophysics questions.
10. 08/04/2007 – Assisted with a campus tour of SFSU for the Berkeley Scholars to Cal (BSC) program, a mentoring program for economically disadvantaged students (especially African-American, Chicano/Latino, Native American) high school students. Encouraged students to consider applying to SFSU. Discussed opportunities for undergraduates at SFSU to participate in scientific research with faculty. Program Director of Berkeley Scholars to Cal program: Jon Brack, Stiles Hall & U.C. Berkeley Graduate School of Education.

Contributions prior to SFSU

1. **Science Education Consultant, Banneker Charter Public School**, Fall 2006 – Fall 2007: I led professional development workshops to help train the teachers at this math/science-focused K-8 public charter school that serves a 100% minority (mostly African-American & Latino) student population.
2. **Workshop Leader for Graduate Student Instructor Teaching & Orientation Conference**, Fall 2000 & Fall 2001: Led workshops to train incoming graduate students at Berkeley on how to be more effective teachers in the physical sciences.
3. **Graduate Student Instructor/Tutor for Physics Scholars Program (PSP)**, August 1999 – December 2000: PSP is a tutoring/mentoring program for women and minority (African-American, Latino, & Asian) undergraduate students in the physical sciences and engineering.
4. **Department of Astronomy, Teaching Committee**, 1997-2000: Graduate student representative on committee for teaching and curriculum issues.
5. **Berkeley Black Graduate Engineering & Science Students Association Science Fair**, 1997-1998: Mentored high-school students from Oakland Technical High School.
6. **Black & Latino Violence Prevention Project**, Stiles Hall, 1996–1998: Mentored three “at-risk” young men from inner-city Oakland.
7. **American Association for the Advancement of Science – Boston Black Church Project (AAAS–BBC)**, 1994-1995: Site coordinator; developed hands-on, interactive science curriculum for after-school tutoring programs that outreached to African-American/Latino youth in the city of Boston.
8. **Bruce Wall Ministries, Inc.**, 1993–1995: Program Coordinator and Lead Tutor at PROJECT 21, an after-school tutoring program for inner-city youth in Boston; Mentor in Gangs Anonymous, a support group for young men formerly involved in gangs; Science Coordinator for Camp Ozioma, a summer program for 50 inner-city youth.